

Abstract of the Disclosure

This invention relates to mosquito multisubstrate deoxyribonucleoside kinases and their use in gene therapy. More specifically the invention provides novel deoxyribonucleoside kinases derived from *Aedes aegypti*. In further aspects the invention provides novel polynucleotides encoding the mosquito deoxyribonucleoside kinases, vector constructs comprising the polynucleotide, host cells carrying the polynucleotide or vector, methods of sensitising cells to prodrugs, method of inhibiting pathogenic agents in warm-blooded animals, methods of synthesizing monophosphates, imaging applications and pharmaceutical compositions comprising the mosquito deoxyribonucleoside kinases of the invention.